

CLAIMS

What is claimed is:

1. A method of addressing data errors in a computer system, comprising:
error-checking a unit of data;
if at least one uncorrectable error is detected in the unit of data, marking the unit of data with an indication that the unit of data contains erroneous data;
detecting, by the computer system, the presence of the indication that the unit of data contains erroneous data; and
acting, by an operating system of the computer system, upon the presence of the indication to address the presence of erroneous data in the unit of data, wherein the operating system is not always brought down upon the presence of the indication.
2. The method of Claim 1, wherein said error-checking comprises:
applying error-control decoding to the unit of data.
3. The method of Claim 2, wherein said error-checking further comprises:
correcting any correctable errors in the unit of data.
4. The method of Claim 1, wherein said marking the unit of data comprises:
setting a data poisoning indicator.
5. The method of Claim 1, wherein said acting upon the presence of the indication comprises:

removing the unit of data from use by the operating system.

6. The method of Claim 5, wherein said acting upon the presence of the indication further comprises:

recovering the unit of data.

7. The method of Claim 1, wherein said marking comprises:

setting a data poisoning indicator of said unit of data if the uncorrectable error is a data poisoning error; and

otherwise, not setting said data poisoning indicator.

8. The method of Claim 7, further comprising:

if the operating system detects the presence of an uncorrected error in the unit of data, determining if the unit of data is in user space; and

if the unit of data is in user space, terminating an application running on the computer system and removing the unit of data from use by the operating system.

9. The method of Claim 1, further comprising:

upon detection of an uncorrectable error in said unit of data, providing information to said operating system to enable recovery of said unit of data.

10. The method of Claim 9, wherein the information includes a target address corresponding to said unit of data.

11. The method of Claim 1, further comprising:
determining whether or not to take immediate action on detection of a data-poisoning error.
12. The method of Claim 11, wherein said determining whether or not to take immediate action on detection of a data-poisoning error comprises:
setting a software-visible control bit.
13. The method of Claim 1, wherein said detecting is performed by at least one of: a processor and a memory.
14. A computer system comprising:
at least one processor;
at least one of an error-control decoder, software to implement error-control decoding by the at least one processor, and firmware to implement error-control decoding in conjunction with the at least one processor, adapted to process units of data and to mark as bad a unit of data containing at least one uncorrectable error; and
at least one operating system running on said at least one processor, the operating system adapted to detect the presence of a unit of data marked as being bad and to act upon said presence to mitigate the at least one uncorrectable error without always bringing down the operating system upon detection of a unit of data marked as being bad.

15. The computer system of Claim 14, further comprising:

a memory coupled to said at least one of an error-control decoder, software to implement error-control decoding, and firmware to implement error-control decoding, wherein the at least one of an error-control decoder, software to implement error-control decoding, and firmware to implement error-control decoding is adapted to process units of data stored in the memory.

16. The computer system of Claim 14, wherein said memory comprises:

a processor cache.

17. The computer system of Claim 14, further comprising:

at least one bus coupled to said at least one of an error-control decoder, software to implement error-control decoding, and firmware to implement error-control decoding, wherein the at least one of an error-control decoder, software to implement error-control decoding, and firmware to implement error-control decoding is adapted to process units of data passing through the at least one bus.

18. The computer system of Claim 14, further comprising:

logic adapted to control signaling of information relating to one or more uncorrectable data errors.

19. The computer system of Claim 18, wherein the logic comprises:

programmable logic.

20. The computer system of Claim 18, wherein the information includes a target address corresponding to a unit of data containing at least one uncorrectable error.

21. A machine-accessible medium containing software code that, when read by a computer, causes the computer to perform a method comprising:

- error-checking a unit of data;
- if at least one uncorrectable error is detected in the unit of data, marking the unit of data with an indication that the unit of data contains erroneous data;
- detecting the presence of the indication that the unit of data contains erroneous data; and
- acting, by an operating system of the computer, upon the presence of the indication to address the presence of erroneous data in the unit of data, wherein the operating system is not always brought down upon the presence of the indication.

22. The machine-accessible medium of Claim 21, further comprising software code that, when read by a computer, causes the computer to also perform the following:

- if the operating system detects the presence of an uncorrected error in the unit of data, determining if the unit of data is in user space; and
- if the unit of data is in user space, terminating an application running on the computer and removing the unit of data from use by the operating system.

23. The machine-accessible medium of Claim 21, wherein said acting upon the presence of the indication comprises:

removing the unit of data from use by the operating system.

24. A computer system comprising:

at least one processor; and

at least one machine-accessible medium coupled to the at least one processor, the at least one processor accessing the at least one machine-accessible medium and executing software code stored on the at least one machine-accessible medium, causing the computer system to perform a method comprising:

error-checking a unit of data;

if at least one uncorrectable error is detected in the unit of data, marking the unit of data with an indication that the unit of data contains erroneous data;

detecting the presence of the indication that the unit of data contains erroneous data; and

acting, by an operating system of the computer system, upon the presence of the indication to address the presence of erroneous data in the unit of data, wherein the operating system is not always brought down upon the presence of the indication.

25. The computer system of Claim 24, wherein the at least one machine-accessible medium further comprises software code executed by the at least one processor such that the computer system further performs:

if the operating system detects the presence of an uncorrected error in the unit of data, determining if the unit of data is in user space; and

if the unit of data is in user space, terminating an application running on the computer and removing the unit of data from use by the operating system.

26. The computer system of Claim 24, wherein the at least one machine-accessible medium further comprises software code executed by the at least one processor, such that the computer system further performs:

removing the unit of data from use by the operating system.

27. The computer system of Claim 24, further comprising:

at least one bus coupling the at least one processor with the at least one machine-accessible medium.